REMARKS

This is in response to the Office Action dated August 16, 2007. With this response, claim 1 is amended and all pending claims 1-16 are presented for reconsideration and favorable action. In the Office Action, claim 12 was indicated as containing allowable subject matter.

A minor typographical error in claim 1 has been corrected and it is believed that this correction will not require any further searching.

In the Office Action, the independent claims were rejected under 35 USC 103 based upon Rouphael et al. (2003/ 0138040) in view of Haunstein et al. (2003/0142740). However, it is submitted that the pending claims are patentably distinct from the combination of these references.

In reviewing the materials, it appears that **feedback** equalizers shown in the Rouphael and Haunstein references are somehow being misconstrued as the same as the equalizer as set forth in the pending claims. In the invention, the equalizer is "tuned" to a bit pattern. For example, Figure 6 shows a graph of equalization for a bit pattern 000 as well as equalization for a bit patter 010 in magnitude (dB) versus normalized frequency. In general, a "equalizer" is a device used to alter the relative strengths of different frequencies in a signal, i.e., "tune." For example, a finite increment response (FIR) filter. (See, for example, column 7, lines 16-17).

In contrast, Rouphael et al. and Haunstein et al. describe "decision feedback equalizers". A decision feedback equalizer uses a feedback filter and a "slicer". The decision feedback equalizer provides a digital value output along with an uncertainty value (see, for example, paragraph 0020 of Rouphael et al). Haunstein et al. simply describe a feedback equalization technique which includes, "adapting the sampling instant for a bit value decision made by the decision means with respect to the sampling phase depending on the bit values of preceding bits, in particular depending on the bit value of the previous bit." (See paragraph 14 of Haunstein et al.)

Note that decision-feedback equalization is referenced in the Background Section of the instant application and described in the article submitted in the Information Disclosure Statement by A. Kavcic entitled "Decision Feedback Equalization in Channels with Signal-Dependent Media Noise", published in IEEE Transactions on Magnetics, vol. 37, no. 4, July 2001, pages 1909-1911.

As discussed in the Background Section, such a technique attempts to combat pattern-dependent media noise using a "post processing" architecture. In other words, the detector assumes that the signals are corrupted by severe data-dependent correlated noise and attempts to compensate for this performance loss by taking into account the pattern-dependence of the noise. In contrast, the present invention is directed to a technique which reduces the total noise seen by the detector prior to detection, rather than compensating for the noise in the detector itself.

As discussed in the prior response, combining the Rouphael reference with any of the four references cited on page 3 of the instant Office Action would not overcome the shortcomings of Rouphael.

More specifically, the pending claims include receiving a signal having a plurality of bit patterns at a bank of equalizers, with each of the equalizers tuned to a different bit pattern. This is not shown by Rouphael or Haunstein. Further, the pattern-dependent output from the equalizers is provided to a detector. This is in contrast with the teachings of Rouphael and Haunstein which are directed to the operation of the detector itself as opposed to modifying the frequency profile of a signal provided to the detector.

As Rouphael and Haunstein do not show all of the elements of the pending claims, it is believed that the rejections should be withdrawn.

In section 2 of the Office Action, claim 4 was rejected under 35 U.S.C. § 112 as being, "vague and indefinite because every possible state transition is not defined." Applicant disagrees that this language is not definite. Specifically, a bit pattern comprises a limited series of bits and therefore, by definition, has a limited number of possible state transition sequences. Claim 4 simply recites calculating a path metric for every one of these possible state transition sequences, as opposed to something less than all of the possible state transition sequences. It is believed that the rejection should be withdrawn.

In view of the above amendments and remarks, reconsideration and favorable action are respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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